JOURNAL OF THEORETICAL BIOLOGY

Co-Chief Editors: S. A. KAUFFMAN
L. WOLPERT

Editorial Board: S. AMARI
J. BONNER
A. CORNISH-BOWDEN
D. GARFINKEL
B. GOODWIN
Y. KOBATAKE
W. R. LIEB
R. B. LUFTIG
R. M. MAY
J. MAYNARD-SMITH
J. D. MURRAY
T. OHTA
H. H. PATTEE
R. ROSEN
M. SLATKIN
T. TAKENAKA
M. VALENTINUZZI
M. VOLKENSTEIN
J. Z. YOUNG

VOLUME 113
March–April 1985

ACADEMIC PRESS
London Orlando San Diego New York
Toronto Montreal Sydney Tokyo

Copyright © 1985, by Academic Press Inc. (London) Ltd

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Great Britain

Contents of Volume 113

Number 1, 7 March 1985

KATZ, M. J. and CHOW, Y-S., Templeting and Self-assembly . 1

BALASUBRAMANIAN, R. and SEETHARAMULU, P., Origins of Life: Conformational Energy Calculations on Primitive tRNA Nestling an Amino Acid 15

TYSON, J. J. and HANNSGEN, K. B., The Distribution of Cell Size and Generation Time in a Model of the Cell Cycle Incorporating Size Control and Random Transitions 29

TODD, P. H., Gaussian Curvature as a Parameter of Biological Surface Growth 63

BRADBURY, R. H., HAMMOND, L. S., MORAN, P. J. and REICHELT, R. E., Coral Reef Communities and the Crown-of-Thorns Starfish: Evidence for Qualitatively Stable Cycles 69

PERKKIÖ, J. and KESKINEN, R., The Relationship between Growth and Allometry 81

ÅGREN, G. I., Limits to Plant Production 89

BECK, S. D., Dual System Theory of the Biological Clock . . 93

CERVANTES-PÉREZ, F., LARA, R. and ARBIB, M., A Neural Model of Interactions Subserving Prey–Predator Discrimination and Size Preference in Anuran Amphibia 117

COHEN, J. E. and NEWMAN, C. M., When Will a Large Complex System Be Stable? 153

DOUNCE, A. L., An Hypothesis for Explaining the Mechanism of Translocation in Peptide Chain Synthesis 157

CARPENTER, G. A. and GROSSBERG, S., A Neural Theory of Circadian Rhythms: Split Rhythms, After-effects and Motivational Interactions 163

Number 2, 21 March 1985

KOCH, C. and POGGIO, T., The Biophysical Properties of Spines as a Basis for their Electrical Function: a Comment on Kawato & Tsukahara (1983) 225

PALSSON, B. O., PALSSON, H. and LIGHTFOOT, E. N., Mathematical Modelling of Dynamics and Control in Metabolic Networks. III. Linear Reaction Sequences 231

PALSSON, B. O. and LIGHTFOOT, E. N., Mathematical Modelling of Dynamics and Control in Metabolic Networks. IV. Local Stability Analysis of Single Biochemical Control Loops 261

PALSSON, B. O. and LIGHTFOOT, E. N., Mathematical Modelling of Dynamics and Control in Metabolic Networks. V. Static Bifurcations in Single Biochemical Control Loops 279

DE MAERTELAER, V. and POTTIER, D., Stability Conditions of Cell Populations *in vivo* 29

HOGEWEG, P. and HESPER, B., Socioinformatic Processes: MIRROR Modelling Methodology 31

VAN STRAALEN, N. M., Production and Biomass Turnover in Stationary Stage-structured Populations 33

DIMITROV, D. S., ZHELEV, D. V. and JAIN, R. K., Stability of Membrane Systems Modeled as Multilayered Viscoelastic Films . 35

ADLER, D., WONG, A. Y. K., MAHLER, Y. and KLASSEN, G. A., Model of Calcium Movements in the Mammalian Myocardium: Interval–Strength Relationship 37

SANFORD, J. C. and JOHNSTON, S. A., The Concept of Parasite-Derived Resistance—Deriving Resistance Genes from the Parasite's Own Genome 39

Number 3, 7 April 1985

BLOMBERG, C., JOHANSSON, J. and LILJENSTRÖM, H., Error Propagation in *E. coli* Protein Synthesis 4

LAWRENCE, C. E. and REILLY, A. A., Maximum Likelihood Estimation of Subsequence Conservation 4

STUART, C. I. J. M., Physical Models of Biological Information and Adaptation 441

LUCAS, J. R. and GRAFEN, A., Partial Prey Consumption by Ambush Predators 455

WAGNER, G. P. and BÜRGER, R., On the Evolution of Dominance Modifiers II: a Non-equilibrium Approach to the Evolution of Genetic Systems 475

SAUVÉ, R. and SZABO, G., Interpretation of $1/F$ Fluctations in Ion Conducting Membranes 501

NALEBUFF, B. and RILEY, J., Asymmetric Equilibria in the War of Attrition 517

REISS, M. J., The Allometry of Reproduction: Why Larger Species Invest Relatively Less in their Offspring 529

PAPADOPOULOS, K. D., YATO, A. and NGUYEN, H., Shape and Elasticity Effects on Erythrocyte Electrostatic Repulsion . . . 545

KOKKINIDIS, M. and ANNINOS, P., Noisy Neural Nets Exhibiting Epileptic Features 559

STENBERG, M. and NYGREN, H., A Diffusion Limited Reaction Theory for a Solid-phase Immunoassay 589

Number 4, 21 April 1985

SUCIU, D., Morphometric Study of the Interphase Nucleus in Some Radiosensitive and Radioresistant Mammalian Cells . . 599

STUART, C. I. J. M., Bio-informational Equivalence . . . 611

KLOPMAN, G. and MACINA, O. T., Use of the Computer Automated Structure Evaluation Program in Determining Quantitative Structure–Activity Relationships Within Hallucinogenic Phenylalkylamines 637

DECROLY, O. and GOLDBETER, A., Selection Between Multiple Periodic Regimes in a Biochemical System: Complex Dynamic Behaviour Resolved by use of One-dimensional Maps . . 649

SHORE, H., Complementary Spatial Locations, Width, and Disparity 673

SIMON, I., Investigation of Protein Refolding: a Special Feature of Native Structure Responsible for Refolding Ability . . 703

AGMON, N., A Diffusion Michaelis–Menten Mechanism: Continuous Conformational Change in Enzymatic Kinetics . . . 711

DE BOER, R. J. and HOGEWEG, P., Tumor Escape from Immune Elimination: Simplified Precursor Bound Cytotoxicity Models . 719

HAMADA, T., IGUTI, S., NISHIMURA, N. and TAINAKA, K., Stage Dependent Density Effect on Yeast Populations . . . 737

FRANCE, J., THORNLEY, J. H. M., DHANOA, M. S. and SIDDONS, R. C., On the Mathematics of Digesta Flow Kinetics . . 743

GIDDENS, D. P. and KITNEY, R. I., Neonatal Heart Rate Variability and its Relation to Respiration 759

LETTERS TO THE EDITOR

KESAVAN, S. K. and REDDY, N. P., On the Feeding Strategy and the Mechanics of Blood Sucking in Insects . . . 781

OKAMOTO, M. and HAYASHI, K., Control Mechanism for a Bacterial Sugar-Transport System: Theoretical Hypothesis . 785

Index to Volume 113

Adaptation, physical models of biological information and, 441
ADLER, D., WONG, A. Y. K., MAHLER, Y. and KLASSEN, G. A., Model of calcium movements in the mammalian myocardium: interval-strength relationship, 379
AGMON, N., A diffusion Michaelis-Menten mechanism: continuous conformational change in enzymatic kinetics, 711
ÅGREN, G. I., Limits to plant production, 89
Allometry and growth, the relationship between, 81
Allometry of reproduction: why larger species invest relatively less in their offspring, 529
Amino acid, conformational energy calculations on primitive tRNA nestling an; origins of life, 15
Amphibia, anuran, a neural model of interactions subserving prey-predator discrimination and size preference in, 117
ANNINOS, P. (see KOKKINIDIS, M.), 559
ARBIB, M. (see CERVANTES-PÉREZ, F.), 117
Asymmetric equilibria in the war of attrition, 517

Bacterial sugar-transport system, control mechanism for; theoretical hypothesis (letter), 785
BALASUBRAMANIAN, R. and SEETHARAMULU, P., Origins of life: conformational energy calculations on primitive tRNA nestling an amino acid, 14
BECK, S. D., Dual system theory of the biological clock, 93
Biochemical control loops, single, local stability analysis of; mathematical modelling of dynamics and control in metabolic networks, 261
Biochemical control loops, single, static bifurcations in; mathematical modelling of dynamics and control in metabolic networks, 279
Biochemical system, selection between multiple periodic regimes in; complex dynamic behaviour resolved by use of one-dimensional maps, 649
Bio-informational equivalence, 611
Biological clock, dual system theory of, 93
Biological information and adaptation, physical models of, 441
Biological surface growth, Gaussian curvature as a parameter of, 63
Biomass turnover in stationary stage-structured propulations, production and, 331
Biophysical properties of spines as a basis for their electrical function: a comment on Kawato & Tsukahara (1983), 225
BLOMBERG, C., JOHANSSON, J. and LILJENSTRÖM, H., Error propagation in *E. coli* protein synthesis, 407
Blood sucking in insects, on the feeding strategy and the mechanics of (letter), 781
BRADBURY, R. H., HAMMOND, L. S., MORAN, P. J. and REICHELT, R. E., Coral reef communities and the crown-of-thorns starfish: evidence for qualitatively stable cycles, 69
BÜRGER, R. (see WAGNER, G. P.), 475

Calcium movements in the mammalian myocardium, model of; interval-strength relationship, 379

CARPENTER, G. A. and GROSSBERG, S., A neural theory of circadian rhythms: split rhythms, after-effects and motivational interactions, 163
Cell populations, stability conditions *in vivo*, 299
Cell size and generation time in a model of the cell cycle incorporating size control and random transitions, the distribution of, 29
Cells, mammalian, radiosensitive and radioresistant, morphometric study of the interphase nucleus in, 599
CERVANTES-PÉREZ, F., LARA, R. and ARBIB, M., A neural model of interactions subserving prey-predator discrimination and size preference in anuran amphibia, 117
Chain synthesis, peptide, a hypothetical explanation of the mechanism of, 157
CHOW, Y-S. (see KATZ, M. J.), 1
Circadian rhythms, a neural theory of; split rhythms, after-effects and motivational interactions, 163
Clock, biological, dual system theory of, 93
COHEN, J. E. and NEWMAN, C. M., When will a large complex system be stable?, 153
Communities, coral reef, and the crown-of-thorns starfish: evidence for qualitatively stable cycles, 69
Complementary spatial locations, width, and disparity, 673
Computer automated structure evaluation program, use in determining quantitative structure–activity relationships within hallucinogenic phenylalkylamines, 637
Conformational continuous change in enzymatic kinetics; a diffusion Michaelis–Menten mechanism, 711
Conformational energy calculations on primitive tRNA nestling an amino acid: origins of life, 15
Conservation, subsequence, maximum likelihood estimation of, 425
Control mechanism for a bacterial sugar-transport system: theoretical hypothesis (letter), 785
Control in metabolic networks, mathematical modelling of dynamics and; linear reaction sequences, 231
Control in metabolic networks, mathematical modelling of dynamics and; local stability analysis of single biochemical control loops, 261
Control in metabolic networks, mathematical modelling of dynamics and; static bifurcations in single biochemical control loops, 279
Coral reef communities and the crown-of-thorns starfish: evidence for qualitatively stable cycles, 69
Crown-of-thorns starfish, coral reef communities and; evidence for qualitatively stable cycles, 69
Cycle, cell, the distribution of cell size and generation time in a model incorporating size control and random transitions, 29
Cycles, qualitatively stable; coral reef communities and the crown-of-thorns starfish, 69
Cytotoxicity models, simplified precursor bound; tumor escape from immune elimination, 719

DE BOER, R. J. and HOGEWEG, P., Tumor escape from immune elimination; simplified precursor bound cytotoxicity models, 719

DE MAERTELAER, V. and POTTIER, D., Stability conditions of cell populations *in vivo*, 299
DECROLY, O. and GOLDBETER, A., Selection between multiple periodic regimes in a biochemical system: complex dynamic behaviour resolved by use of one-dimensional maps, 649
Density effect, stage dependent, on yeast populations, 737
DHANOA, M. S. (see FRANCE, J.), 743
Diffusion limited reaction theory for a solid-phase immunoassay, 589
Diffusion Michaelis–Menten mechanism: continuous conformational change in enzymatic kinetics, 711
Digesta flow kinetics, on the mechanics of, 743
DIMITROV, D. S., ZHELEV, D. V. and JAIN, R. K., Stability of membrane systems modeled as multilayered viscoelastic films, 353
Disparity, complementary spatial locations, width, and, 673
Dominance modifiers, on the evolution of; a non-equilibrium approach to the evolution of genetic systems, 475
DOUNCE, A. L., An hypothesis for explaining the mechanism of translation in peptide chain synthesis, 157
Dual system theory of the biological clock, 93
Dynamic behaviour, complex, resolved by use of one-dimensional maps; selection between multiple periodic regimes in a biochemical system, 643
Dynamics and control in metabolic networks, mathematical modelling; linear reaction sequences, 231
Dynamics and control in metabolic networks, mathematical modelling; local stability analysis of single biochemical control loops, 261
Dynamics and control in metabolic networks, mathematical modelling; state bifurcations in single biochemical control loops, 279

Elasticity effects on erythrocyte electrostatic repulsion, 545
Electrical function, the biophysical properties of spines as a basis for; a comment on Kawato & Tsukahara (1983), 225
Electrostatic repulsion of erythrocytes, shape and elasticity effects on, 545
Energy, conformational, calculations on primitive tRNA nestling on amino acid; origins of life, 15
Enzymatic kinetics, continuous conformational change in; a diffusion Michaelis–Menten mechanism, 711
Epileptic features exhibited by noisy neural nets, 559
Error propagation in *E. coli* protein synthesis, 407
Erythrocyte electrostatic repulsion, shape and elasticity effects on, 545
E. coli protein synthesis, error propagation in, 407
Evolution of dominance modifiers: a non-equilibrium approach to the evolution of genetic systems, 475

$1/F$ fluctuations in ion conducting membranes, interpretation of, 501
Feeding strategy and the mechanics of blood sucking in insects (letter), 781
Films, viscoelastic, multilayered, stability of membrane systems modeled as, 353
FRANCE, J., THORNLEY, J. H. M., DHANOA, M. S. and SIDDONS, R. C., On the mathematics of digesta flow kinetics, 743

Gaussian curvature as a parameter of biological surface growth, 63
Genes, resistance, resistance-deriving, parasite-derived, from the parasite's own genome, the concept of, 395
Genetic systems, a non-equilibrium approach to the evolution of; on the evolution of dominance modifiers, 475
GIDDENS, D. P. and KITNEY, R. I., Neonatal heart rate variability and its relation to aspiration, 759
GOLDBETER, A. (see DECROLY, D.), 649
GRAFEN, A. (see LUCAS, J. R.), 455
GROSSBERG, S. (see CARPENTER, G. A.), 163
Growth and allometry, the relationship between, 81
Growth of biological surfaces, Gaussian curvature as a parameter of, 63

Hallucinogenic phenylalkylamines, use of the computer automated structure evaluation program in determining quantitative structure–activity relationships in, 637
HAMADA, T., IGUTI, S., NISHIMURA, N. and TAINAKA, K., Stage dependent density effect on yeast populations, 737
HAMMOND, L. S. (see BRADBURY, R. H.), 69
HANNSGEN, K. B. (see TYSON, J. J.), 29
HAYASHI, K. (see OKAMOTO, M.), 785
Heart rate variability, neonatal, and its relation to respiration, 759
HESPER, B. (see HOGEWEG, P.), 311
HOGEWEG, P. and HESPER, B., Socioinformatic processes: MIRROR modelling methodology, 311
HOGEWEG, P. (see DE BOER, R. J.), 719

IGUTI, S. (see HAMADA, T.), 737
Immune elimination, tumor escape from; simplified precursor bound cytotoxicity models, 719
Immunoassay, solid-phase, a diffusion limited reaction theory for, 589
Information: bio-informational equivalence, 611
Information, biological, and adaptation, physical models of, 441
Insects, on the feeding strategy and the mechanics of blood sucking in (letter), 781
Ion conducting membranes, interpretation of $1/F$ fluctuations in, 501

JAIN, R. K. (see DIMITROV, D. S.), 379
JOHANSSON, J. (see BLOMBERG, C.), 407
JOHNSTON, S. A. (see SANFORD, J. C.), 395

KATZ, M. J. and CHOW, Y-S., Templeting and self-assembly, 1
KESAVAN, S. K. and REDDY, N. P., On the feeding strategy and the mechanics of blood sucking in insects (letter), 781
KESKINEN, R. (see PERKKIÖ, J.), 81
Kinetics, digesta flow, on the mechanics of, 743
Kinetics, enzymatic, continuous conformational change in; a diffusion Michaelis-Menten mechanism, 711
KITNEY, R. I. (see GIDDENS, D. P.), 759
KLASSEN, G. A. (see ADLER, D.), 379

KLOPMAN, G. and MACINA, O. T., Use of the computer automated structure evaluation program in determining structure-activity relationships within hallucinogenic phenylalkylamines, 637
KOCH, C. and POGGIO, T., The biophysical properties of spines as a basis for their electrical function: a comment on Kawato & Tsukahara (1983), 225
KOKKINIDIS, M. and ANNINOS, P., Noisy neural nets exhibiting epileptic features, 559

LARA, R. (see CERVANTES-PÉREZ, F.), 117
LAWRENCE, C. E. and REILLY, A. A., Maximum likelihood estimation of subsequence conservation, 425
Life origins: conformational energy calculations on primitive tRNA nestling an amino acid, 15
LIGHTFOOT, E. N. (see PALSSON, B. O.), 231, 261, 279
LILJENSTRÖM, H. (see BLOMBERG, C.), 407
LUCAS, J. R. and GRAFEN, A., Partial prey consumption by ambush predators, 455

MACINA, O. T. (see KLOPMAN, G.), 637
MAHLER, Y. (see ADLER, D.), 379
Mammalian cells, radiosensitive and radioresistant, morphometric study of the interphase nucleus in, 599
Mammalian myocardium, model of calcium movements in; interval-strength relationship, 379
Maps, one-dimensional, used to resolve complex dynamic behaviour; selection between multiple periodic regimes in a biochemical system, 649
Membrane systems modeled as multilayered viscoelastic films, stability of, 353
Membranes, ion conducting, interpretation of $1/F$ fluctuations in, 501
Metabolic networks, mathematical modelling of dynamics and control in; linear reaction sequences, 231
Metabolic networks, mathematical modelling of dynamics and control in; local stability analysis of single biochemical control loops, 261
Metabolic networks, mathematical modelling of dynamics and control in; static bifurcations in single biochemical control loops, 279
Michaelis–Menten diffusion mechanism: continuous conformational change in enzymatic kinetics, 711
MIRROR modelling methodology; socioinformatic processes, 311
MORAN, P. J. (see BRADBURY, R. H.), 69
Morphometric study of the interphase nucleus in some radiosensitive and radioresistant mammalian cells, 599
Myocardium, mammalian, model of calcium movements in; interval-strength relationship, 379

NALEBUFF, B. and RILEY, J., Asymmetric equilibria in the war of attrition, 517
Neonatal heart rate variability and its relation to respiration, 759
Nets, neural, noisy, exhibiting epileptic features, 559
Networks, metabolic, mathematical modelling of dynamics and control in; linear reaction sequences, 231
Networks, metabolic, mathematical modelling of dynamics and control in; local stability analysis of single biochemical control loops, 261

Neural model of interactions subserving prey-predator discrimination and size preference in anuran amphibia, 117
Neural nets, noisy, exhibiting epileptic features, 559
Neural theory of circadian rhythms: split rhythms, after-effects and motivational interactions, 163
NEWMAN, C. M. (see COHEN, J. E.), 153
NGUYEN, H. (see PAPADOPOULOS, K. D.), 545
NISHIMURA, H. (see HAMADA, T.), 737
Noisy neural nets exhibiting epileptic features, 559
Nucleus, interphase, in some radiosensitive and radioresistant mammalian cells, morphometric study of, 599
NYGREN, H. (see STENBERG, M.), 589

Offspring, why larger species invest relatively less in: the allometry of reproduction, 529
OKAMOTO, M. and HAYASHI, K., Control mechanism for a bacterial sugar-transport system: theoretical hypothesis (letter), 785

PALSSON, B. O., PALSSON, H. and LIGHTFOOT, E. N., Mathematical modelling of dynamics and control in metabolic networks. III. Linear reaction sequences, 231
PALSSON, B. O. and LIGHTFOOT, E. N., Mathematical modelling of dynamics and control in metabolic networks. IV. Local stability analysis of single biochemical control loops, 261
PALSSON, B. O. and LIGHTFOOT, E. N., Mathematical modelling of dynamics and control in metabolic networks. V. Static bifurcations in single biochemical control loops, 279
PALSSON, H. (see PALSSON, B. O.), 231
PAPADOPOULOS, K. D., YATO, A. and NGUYEN, H., Shape and elasticity effects on erythrocyte electrostatic repulsion, 545
Parasite-derived resistance—deriving resistance genes from the parasite's own genome, the concept of, 395
Peptide chain synthesis, hypothetical explanation of the mechanism of, 157
Periodic regimes, multiple, in a biochemical system, selection between; complex dynamic behaviour resolved by use of one-dimensional maps, 649
PERKKIÖ, J. and KESKINEN, R., The relationship between growth and allometry 81
Phenylalkylamines, hallucinogenic, use of the computer automated structure evaluation program in determining quantitative structure-activity relationships in, 63
Physical models of biological information and adaptation, 441
Plant production, limits to, 89
POGGIO, T. (see KOCH, C.), 225
Populations, cell, stability conditions *in vivo*, 299
Populations, stage-structured, stationary, production and biomass turnover in, 33
Populations, yeast, stage dependent density effect on, 737
POTTIER, D. (see DE MAERTELAER, V.), 299
Predators, ambush, partial prey consumption by, 455
Prey consumption, partial, by ambush predators, 455
Prey-predator discrimination and size preference in anuran amphibia, a neural model of interactions subserving, 117

Production and biomass turnover in stationary stage-structured populations, 331
Protein refolding: a special feature of native structure responsible for refolding ability, 703
Protein synthesis, *E. coli*, error propagation in, 407

Radiosensitive and radioresistant mammalian cells, morphometric study of the interphase nucleus in, 599
Reaction theory, diffusion limited, for a solid-phase immunoassay, 589
REDDY, N. P. (see KESAVAN, S. K.), 781
Refolding, protein: a special feature of native structure responsible for refolding ability, 703
REICHELT, R. E. (see BRADBURY, R. H.), 69
REILLY, A. A. (see LAWRENCE, C. E.), 425
REISS, M. J., The allometry of reproduction: why larger species invest relatively less in their offspring, 529
Reproduction, the allometry of; why larger species invest relatively less in their offspring, 529
Resistance genes, parasite-derived, from the parasite's own genome, the concept of, 395
Respiration, neonatal heart rate variability and its relation to, 759
Rhythms, circadian, a neural theory of; split rhythms, after-effects and motivational interactions, 163
RILEY, J. (see NALEBUFF, B.), 517

SANFORD, J. C. and JOHNSTON, S. A., The concept of parasite-derived resistance—deriving resistance genes from the parasite's own genome, 395
SAUVÉ, R. and SZABO, G., Interpretation of $1/F$ fluctuations in ion conducting membranes, 501
SEETHARAMULU, P. (see BALASUBRAMANIAN, R.), 15
Self-assembly, templeting and, 1
Shape and elasticity effects on erythrocyte electrostatic repulsion, 545
SHORE, H., Complementary spatial locations, width, and disparity, 673
SIDDONS, R. C. (see FRANCE, J.), 743
SIMON, I., Investigation of protein refolding: a special feature of native structure responsible for refolding ability, 703
Size control and random transitions, the distribution of cell size and generation time in a model of the cell cycle incorporating, 29
Size preference in anuran amphibia, a neural model of interactions subserving prey-predator discrimination and, 117
Sociocinformatic processes: MIRROR modelling methodology, 311
Solid-phase immunoassay, a diffusion limited reaction theory for, 589
Spatial locations, complementary, width, and disparity, 673
Species, larger, invest relatively less in their offspring; the allometry of reproduction, 529
Spines, the biophysical properties of, as a basis for electrical function; a comment on Kawato & Tsukahara (1983), 225
Stability analysis of single biochemical control loops; mathematical modelling of dynamics and control in metabolic networks, 261
Stability conditions of cell populations *in vivo*, 299
Stability of a large complex system, 153

Stability of membrane systems modeled as multilayered viscoelastic films, 353
Stability, qualitative, of cycles; coral reef communities and the crown-of-thorns starfish, 69
Stage dependent density effect on yeast populations, 737
Stage-structured populations, stationary, production and biomass turnover in, 331
Starfish, crown-of-thorns, coral reef communities and; evidence for qualitatively stable cycles, 69
STENBERG, M. and NYGREN, H., A diffusion limited reaction theory for a solid-phase immunoassay, 589
Structure–activity quantitative relationships within hallucinogenic phenylalkyl-amines, determination by computer automated structure evaluation program, 637
STUART, C. I. J. M., Bio-informational equivalence, 611
STUART, C. I. J. M., Physical models of biological information and adaptation, 441
Subsequence conservation, maximum likelihood estimation of, 425
SUCIU, D., Morphometric study of the interphase nucleus in some radiosensitive and radioresistant mammalian cells, 599
Sugar-transport system, bacterial, theoretical hypothesis for a control mechanism (letter), 785
Surface growth, biological, Gaussian curvature as a parameter of, 63
System, complex, large, when will it be stable?, 153
SZABO, G. (see SAUVÉ, R.), 501

TAINAKA, K. (see HAMADA, T.), 737
Templeting and self-assembly, 1
THORNLEY, J. H. M. (see FRANCE, J.), 743
TODD, P. H., Gaussian curvature as a parameter of biological surface growth, 63
tRNA, primitive, nestling an amino acid, conformational energy calculations on origins of life, 15
Translocation mechanism in peptide chain synthesis, a hypothetical explanation of 157
Transport system, sugar, bacterial, theoretical hypothesis for a control mechanism (letter), 785
Tumor escape from immune elimination: simplified precursor bound cytotoxicity models, 719
TYSON, J. J. and HANNSGEN, K. B., The distribution of cell size and generation time in a model of the cell cycle incorporating size control and random transitions 29

VAN STRAALEN, N. M., Production and biomass turnover in stationary stage structured populations, 331
Viscoelastic films, multilayered, stability of membrane systems modeled as, 353

WAGNER, G. P. and BÜRGER, R., On the evolution of dominance modifiers II: non-equilibrium approach to the evolution of genetic systems, 475
War of attrition, asymmetric equilibria in, 517
WONG, A. Y. K. (see ADLER, D.), 370

YATO, A. (see PAPADOPOULOS, K. D.), 545
Yeast populations, stage dependent density effect on, 737

ZHELEV, D. V. (see DIMITROV, D. S.), 353